

SEQUENCE LISTINGS

Copy

<110> PANGENOMICS Co., Ltd

<120> Her-2/neu DNA VACCINE HAVING ANTI-CANCER ACTIVITY

<130> PCA30540/PAN/PCT

<150> KR2002-41764

<151> 2002-07-16

<150> KR2003-38012

<151> 2003-06-12

<160> 24

<170> KopatentIn 1.71

<210> 1

<211> 4530

<212> DNA

<213> human Her-2/neu gene cDNA

<400> 1

aattctcgag ctgctcgacc ggtcgacgag ctcgagggtc gacgagctcg agggcgcgcg 60

cccgcccccc acccctcgca gcaccccgcg ccccgcgccc tccagccgg gtccagccgg 120

agccatgggg ccggagccgc agtgagcacc atggagctgg cggccttggt ccgctggggg 180

ctctctctcg cctctctgcc ccccgagacc gcgagcacc aagtgtgcac cggcacagac 240

atgaagctgc ggctccctgc cagtcccgag acccacctgg acatgctccg ccacctctac 300

cagggctgcc aggtggtgca gggaaacctg gaactcacct acctgcccac caatgccagc 360

ctgtccttcc tgcaggatat ccaggagggtg cagggtctacg tgctcatcgc tcacaaccaa 420

gtgaggcagg tccactgca gaggtgctgg attgtgcgag gcaccagct ctttgaggac 480

aactatgccc tggccgtgct agacaatgga gaccgctga acaataccac ccctgtcaca 540

ggggcctccc caggaggcct gcgggagctg cagcttcgaa gcctcacaga gatcttgaaa 600

ggaggggtct tgatccagcg gaacccccag ctctgtctacc aggacacgat tttgtggaag 660

gacatcttcc acaagaacaa ccagctggct ctacactga tagacaccaa ccgctctcgg 720
gcctgccacc cctgttctcc gatgtgtaag ggctcccgt gctggggaga gatttctgag 780
gattgtcaga gcctgacgcg cactgtctgt gccggtggct gtgcccgtg caaggggcca 840
ctgcccactg actgctgcca tgagcagtgt gctgccggct gcacggggcc caagcactct 900
gactgcctgg cctgcctcca cttcaaccac agtggcatct gtgagctgca ctgcccagcc 960
ctggtcacct acaacacaga cacgtttgag tccatgcccc atcccaggagg ccggtatata 1020
ttcggcgcca gctgtgtgac tgccgttccc tacaactacc ttctacgga cgtgggatcc 1080
tgaccctcg tctgccccct gcacaaccaa gaggtgacag cagaggatgg aacacagcgg 1140
tgtgagaagt gcagcaagcc ctgtgccga gtgtgctatg gtctgggcat ggagcacttg 1200
cgagaggatga gggcagttac cagtgccaat atccaggagt ttgctggctg caagaagatc 1260
tttgggagcc tggcatttct gccggagagc ttgatgggg acccagcctc caacactgcc 1320
ccgctccagc cagagcagct ccaagtgttt gagactctgg aagagatcac aggttaccta 1380
tacatctcag catggccgga cagcctgcct gacctagcg tcttccagaa cctgcaagta 1440
atccggggac gaattctgca caatggcgcc tactcgctga ccctgcaagg gctgggcatc 1500
agctggctgg ggctgcgctc actgaggga ctgggcagt gactggccct catccaccat 1560
aacaccacc tctgcttctg gcacacggtg ccctgggacc agctctttcg gaaccgcac 1620
caagctctgc tccacactgc caaccggcca gaggacgagt gtgtggcgga gggcctggcc 1680
tgccaccagc tgtgcgccc agggcactgc tgggtccag ggcccacca gtgtgtcaac 1740
tgcagccagt tccttcgggg ccaggagtgc gtggaggaat gccagtgact gcaggggctc 1800
cccaggagat atgigaatgc caggcactgt ttgccgtgcc accctgagtg tcagccccag 1860
aatggctcag tgacctgttt tggaccggag gctgaccagt gtgtggcctg tgcccactat 1920
aaggaccctc ccttctgctg ggcccgtgc ccagcgggtg tgaaacctga cctctctac 1980
atgcccatct ggaagtctcc agatgaggag ggcgcatgcc agccttgccc catcaactgc 2040

accactcct gtgtggacct ggatgacaag ggctgccccg ccgagcagag agccagccct 2100
 ctgacgtcca tcgtctctgc ggtggttggc attctgctgg tcgtggtctt gggggtggtc 2160
 tttgggatcc tcatcaagcg acggcagcag aagatccgga agtacacgat gcggagactg 2220
 ctgcaggaaa cggagctggt ggagccgctg acacctagcg gagcgatgcc caaccaggcg 2280
 cagatgcgga tcctgaaaga gacggagctg aggaaggatga aggtgcttgg atctggcgct 2340
 tttggcacag tctacaaggg catctggatc cctgatgggg agaattgtgaa aattccagt 2400
 gccatcaaag tgttgagggg aaacacatcc cccaaagcca acaagaaat cttagacgaa 2460
 gcatacgtga tggctggtgt gggctcccca tatgtctccc gccttctggg catctgcctg 2520
 acatccacgg tgcagctggt gacacagctt atgccctatg gctgcctctt agaccatgtc 2580
 cgggaaaacc gcggacgcct gggctcccag gacctgctga actggtgtat gcagattgcc 2640
 aaggggatga gctacctgga ggatgtgcgg ctcgtaaca gggacttggc cgctcggaac 2700
 gtgctggtca agagtcccaa ccatgtcaaa attacagact tcgggctggc tcggctgctg 2760
 gacattgacg agacagagta ccatgcagat gggggcaagg tgcccatcaa gtggatggcg 2820
 ctggagtcca ttctccgccg gcggttacc caccagagtg atgtgtggag ttatggtgtg 2880
 actgtgtggg agctgatgac ttttggggcc aaaccttacg atgggatccc agcccgggag 2940
 atccctgacc tgctggaaaa gggggagcgg ctgccccagc ccccatctg caccattgat 3000
 gtctacatga tcatggtcaa atgttggatg attgactctg aatgtcggcc aagattccgg 3060
 gagttggtgt ctgaattctc ccgcatggcc agggaccccc agcgctttgt ggtcatccag 3120
 aatgaggact tgggcccagc cagtcccttg gacagcacct tctaccgctc actgctggag 3180
 gacgatgaca tgggggacct ggtggatgct gaggagtatc tggtaaccca gcagggcttc 3240
 ttctgtccag accctgcccc gggcgctggg ggcattggtcc accacaggca ccgcagctca 3300
 tctaccagga gtggcgggtg ggacctgaca ctagggttg agccctctga agaggaggcc 3360
 cccaggtctc cactggcacc ctccgaagg gctggctccg atgtatttga tggtagcctg 3420

ggaatggggg cagccaaggg gctgcaaagc ctccccacac atgaccccag ccctctacag 3480
 cggtagctg aggaccccac agtaccctg ccctctgaga ctgatggcta cgttgccccc 3540
 ctgacctgca gccccagcc tgaatatgtg aaccagccag atgttcggcc ccagcccct 3600
 tcgccccgag agggccctct gcctgctgcc cgacctgctg gtgccactct ggaaagggcc 3660
 aagactctct ccccagggaa gaatggggc gtcaaagacg ttttgcctt tgggggtgcc 3720
 gtggagaacc ccgagtactt gacaccccag ggaggagctg cccctcagcc ccaccctct 3780
 cctgccttca gccagcctt cgacaacctc tattactggg accaggaccc accagagcgg 3840
 ggggtccac ccagcacctt caaagggaca cctacggcag agaaccaga gtacctgggt 3900
 ctggacgtgc cagtgtgaac cagaaggcca agtccgcaga agccctgatg tgcctcagg 3960
 gagcagggaa ggcctgactt ctgctggcat caagaggtag gaggccctc cgaccacttc 4020
 caggggaacc tgccatgcca ggaacctgtc ctaaggaacc ttccttcctg ctgagttcc 4080
 cagatggctg gaaggggtcc agcctcgttg gaagaggaac agcactggg agtctttgtg 4140
 gattctgagg cctgcccac tgagactcta ggtccagtg gatccacag ccagcttgg 4200
 ccttttctt ccagatcctg ggtactgaaa gccttaggga agctggcctg agaggggaag 4260
 cggccctaag ggagtgtcta agaacaaaag cgaccattc agagactgtc cctgaaacct 4320
 agtactgccc cccatgagga aggaacagca atgggtgcag tatccaggct ttgtacagag 4380
 tgctttctg tttagttttt acttttttg tttgtttt ttaaagacga aataaagacc 4440
 caggggagaa tgggtgttgt atggggaggc aagtgtggg ggtccttctc cacaccact 4500
 ttgtccattt gcaaataat tttggaaaac 4530

<210> 2
 <211> 2052
 <212> DNA
 <213> human Her-2/neu gene without intracellular region

<400> 2
 atggagctgg cggccttgct ccgctggggg ctctctctg ccctcttgcc ccccgagacc 60

gcgagcacc aagtgtgcac cggcacagac atgaagctgc ggctccctgc cagtcccgag 120
 acccacctgg acatgtctcg ccacctctac cagggctgcc aggtgggtgca gggaaacctg 180
 gaactcacct acctgcccac caatgccagc ctgtccttcc tgcaggatat ccaggagggtg 240
 cagggctacg tgctcatcgc tcacaaccaa gtgaggcagg tccactgca gaggctgcgg 300
 attgtgcgag gcacccagct ctttgaggac aactatgccc tggccgtgct agacaatgga 360
 gacccgctga acaataccac ccctgtcaca ggggcctccc caggaggcct gcgggagctg 420
 cagcttcgaa gcctcacaga gatcttgaaa ggaggggtct tgatccagcg gaacccccag 480
 ctctgttacc aggacacgat tttgtggaag gacatcttcc acaagaacaa ccagctggct 540
 ctcacactga tagacaccaa ccgtctctcg gcctgccacc cctgttctcc gatgtgtaag 600
 ggctcccgct gctggggaga gagttctgag gattgtcaga gcctgacgcg cactgtctgt 660
 gccggtggct gtgcccgtg caaggggcca ctgccactg actgctgcca tgagcagtgt 720
 gctgccggct gcacgggccc caagcactct gactgcctgg cctgcctcca cttcaaccac 780
 agtggcatct gtgagctgca ctgccagcc ctggtcacct acaacacaga cacgtttgag 840
 tccatgcca atcccagggg ccggtataca ttccggcca gctgtgtgac tgcctgtccc 900
 tacaactacc ttctacgga cgtgggatcc tgcacctcg tctgcccct gcacaaccaa 960
 gaggtgacag cagaggatgg aacacagcgg tgtgagaagt gcagcaagcc ctgtgcccga 1020
 gtgtgctatg gtctgggcat ggagcacttg cgagagggtga gggcagttac cagtgccaat 1080
 atccaggagt ttgctggctg caagaagatc ttggggagcc tggcatttct gccggagagc 1140
 ttgatgggg acccagcctc caacactgcc ccgtccagc cagagcagct ccaagtgttt 1200
 gagactctgg aagagatcac aggttaccta tacatctcag catggccgga cagcctgcct 1260
 gacctcagcg tcttcagaa cctgcaagta atccggggac gaattctgca caatggcgcc 1320
 tactcgctga cctgcaagg gctgggcata agctggctgg ggctgcgctc actgagggaa 1380
 ctgggcagtg gactggccct catccaccat aaccccacc tctgcttctg gcacacggtg 1440

ccctgggacc agctctttcg gaacccgcac caagctctgc tccacactgc caaccggcca 1500
 gaggacgagt gtgtgggcga gggcctggcc tgccaccagc tgtgcgccc agggcactgc 1560
 tgggtccag ggcccaccca gtgtgtcaac tgcagccagt tccttcgggg ccaggagtgc 1620
 gtggaggaat gccgagtact gcaggggctc cccaggagat atgtgaatgc caggcactgt 1680
 ttgccgtgcc accctgagtg tcagccccag aatggctcag tgacctgtt tggaccggag 1740
 gctgaccagt gtgtggcctg tgcccactat aaggaccctc ccttctgctg gggccgctgc 1800
 cccagcggtg tgaacctga cctctcctac atgccatct ggaagtctc agatgaggag 1860
 ggcgcagtc agccttgccc catcaactgc accactcct gtgtggacct ggatgacaag 1920
 ggctgccccg ccgagcagag agccagccct ctgacgtcca tcgtctctgc ggtggttggc 1980
 attctgctgg tcgtggtctt ggggtggtc ttgggatcc tcatcaagcg acggcagcag 2040
 aagatccgga ag 2052

<210> 3
 <211> 1956
 <212> DNA
 <213> human Her-2/neu gene without intracellular region and transmembrane domain

<400> 3
 atggagctgg cggccttggt ccgctggggg ctctcctcg cctcttggc ccccgagcc 60
 gcgagcacc aagtgtgcac cggcacagac atgaagctgc ggctccctgc cagtcccag 120
 acccacctgg acatgctccg ccacctctac cagggtgctc aggtggtgca gggaaacctg 180
 gaactcacct acctgcccac caatgccagc ctgtccttcc tgcaggatat ccaggagtg 240
 cagggtacg tgctcatgc tcacaaccaa gtgaggcagg tccactgca gaggctgcg 300
 attgtgcgag gcaccagct ctttgaggac aactatgcc tggccgtgct agacaatgga 360
 gaccgctga acaataccac cctgtcaca gggcctccc caggaggcct gcgggagctg 420
 cagcttcgaa gcctcacaga gatcttgaag ggaggggtct tgatccagcg gaacccccag 480

ctctgctacc aggacacgat ttgtggaag gacatcttcc acaagaacaa ccagctggct 540
ctcactga tagacaccaa ccgctctcgg gcctgccacc cctgttctcc gatgtgtaag 600
ggctcccgt gctggggaga gatttctgag gattgtcaga gcctgacgcg cactgtctgt 660
gccggtggct gtgcccgtg caaggggcca ctgccactg actgtgccca tgagcagtgt 720
gtgcccggct gcacggggcc caagcactct gactgcctgg cctgcctcca cttcaaccac 780
agtggcatct gtgagctgca ctgccagcc ctggtcacct acaacacaga cacgtttgag 840
tccatgccc aatcccaggg ccggtataca ttccggcca gctgtgtgac tgcctgtccc 900
tacaactacc ttctacgga cgtgggatcc tgcacctcg tctgcccct gcacaacaa 960
gaggtgacag cagaggatgg aacacagcgg tgtgagaagt gcagcaagcc ctgtgcccga 1020
gtgtgctatg gtctgggcat ggagcacttg cgagaggta gggcagttac cagtgccaat 1080
atccaggagt ttgtggctg caagaagatc ttggggagcc tggcatttct gccggagagc 1140
tttgatggg acccagcctc caacactgcc ccgctccagc cagagcagct ccaagtgttt 1200
gagactctgg aagagatcac aggttaccta tacatctcag catggccgga cagcctgcct 1260
gacctagcg tcttcagaa cctgcaagta atccggggac gaattctgca caatggcgcc 1320
tactcgctga ccctgcaagg gctgggcatc agctggctgg ggctgcgctc actgagggaa 1380
ctgggcagt gactggccct catccacat aacaccacc tctgcttctg gcacacggtg 1440
ccctgggacc agctctttcg gaaccgcac caagctctgc tccacactgc caaccggcca 1500
gaggacgagt gtgtgggcga gggcctggcc tgccaccagc tgtgcgccc agggcactgc 1560
tgggtccag gggccacca gtgtgtcaac tgcagccagt tccttcgggg ccaggagtgc 1620
gtggaggaat gccagttact gcaggggctc ccaggaggat atgtgaatgc caggcactgt 1680
ttgccgtgcc accctgagt tcagccccag aatggctcag tgacctgttt tggaccggag 1740
gtgaccagt gtgtggcctg tgccactat aaggaccctc ctttctcgt gggccgctgc 1800
cccagcgggtg tgaacctga cctctcctac atgccatct ggaagtttcc agatgaggag 1860

ggcgcacatgcc agccttgccc catcaactgc acccactcct gtgtggacct ggatgacaag 1920

ggctgccccg ccgagcagag agccagccct ctgacg 1956

<210> 4
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> NF6 primer

<400> 4 27
ggtaccatgg agctggcggc cttgtgc

<210> 5
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> NSR1 primer

<400> 5 31
gtctagatga ttcacgtcag agggctggct c

<210> 6
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> NF5 primer

<400> 6 23
gcagtggtag ccaagcttag cac

<210> 7

<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> NRM2 primer

<400> 7
ttctagagca gtctccgcat cgtctac

27

<210> 8
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> NSF2 primer

<400> 8
ggcgcgcccc ggcacagaca tgaagctg

28

<210> 9
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> NF3 primer

<400> 9
gccgcagcgg ccgccatgga gctg

24

<210> 10
<211> 1535
<212> DNA
<213> mouse Eta-1 gene

<400> 10
gggggggggg gggggggggg ggggccttcc ttgctcctta tgagaggtgg agaggtagaa

60

aaggcacaca aatattgact cactgaaatt ttctctgaga ttagaaaaga ttccataaat 120
tattggtagc ttggtggtag tctagtggtag ccaagagtgt gtttgaacct gacaagacat 180
caactgtgcc tcaataaata tgttcagga ctaactacga ccatgagatt ggcagtgatt 240
tgcttttgcc tgtttggcat tgctcctcc ctcccggtga aagtactga ttctggcagc 300
tcagaggaga agctttacag cctgcacca gatcctatag ccacatggcc ggtgcctgac 360
ccatctcaga agcagaatct ccttgcgcca cagaatgctg tgcctctga agaaaaggat 420
gactttaagc aagaaactct tccaagcaat tccaatgaa gccatgacca catggacgac 480
gatgatgacg atgatgatga cgatggagac catgcagaga gcgaggattc tgtggactcg 540
gatgaatctg acgaatctca ccattcggat gagtctgatg agaccgtcac tgctagtaca 600
caagcagaca ctttactcc aatcgtccct acagtcatg tccccaacgg ccgaggtgat 660
agcttggctt atggactgag gtcaaagtct aggagtttcc aggtttctga tgaacagtat 720
cctgatgcca cagatgagga cctcacctct cacatgaaga gcggtgagtc taaggagtcc 780
ctcgaatgca tccctgttgc ccagcttctg agcatgccct ctgatcagga caacaacgga 840
aagggcagcc atgagtcaag tcagctggat gaaccaagtc tggaaacaca cagacttgag 900
cattccaaag agagccagga gagtgccgat cagtcggatg tgatcgatag tcaagcaagt 960
tccaaagcca gcctggaaca tcagagccac aagtttcaca gccacaagga caagctagtc 1020
ctagacccta agagtaagga agatgatagg tatctgaaat tccgaatttc tcatgaatta 1080
gagagttcat ctctgaggt caactaaaga agaggcaaaa acacagtcc ttactttgca 1140
tttagtaaaa acaagaaaaa gtgttagtga ggttaagca ggaatactaa ctgctcattt 1200
ctcagttcag tggatatatg tatgtagaga aagagaggta atattttggg ctcttagctt 1260
agtctgttgt ttcatgcaa caccgttgta accaaaagct tctgcacttt gcttctgttg 1320
ttctgtaca agaaatgcaa cggccactgc attttaatga ttgtattct ttcatgaata 1380
aatgtatgt agaaataagt aaatttactg aaacaagcaa gaattaaaag agaaactgta 1440

acagtctata tcactatacc cttttagttt tataattagc atatatittg ttgtgattta 1500
 ttttttttg ttgggtgtaa taaatcttgt taacg 1535

<210> 11
 <211> 1535
 <212> DNA
 <213> mouse IL-18 gene

<400> 11
 gggggggggg gggggggggg ggggccttcc ttgctcctta tgagaggtagg agaggtagaa 60
 aaggcacaca aatattgact cactgaaatt ttctctgaga tgtagaaaga ttccataaat 120
 tattggtgac ttgggtggtga tctagtgggtg ccaagagtgt gtttgaacct gacaagacat 180
 caactgtgcc tcataaaata tgttgcagga ctaactacga ccatgagatt ggcagtgatt 240
 tgcttttgcc tgtttggcat tgccctctcc ctcccgggtga aagtgactga ttctggcagc 300
 tcagaggaga agctttacag cctgcaccca gatcctatag ccacatggcc ggtgcctgac 360
 ccatctcaga agcagaatct ccttgcgcca cagaatgctg tgctctctga agaaaaggat 420
 gactttaagc aagaaactct tccaagcaat tccaatgaaa gccatgacca catggacgac 480
 gatgatgacg atgatgatga cgaaggagac catgcagaga gcgaggattc tgtggactcg 540
 gatgaatctg acgaatctca ccattcggtat gagtctgatg agaccgtcac tgctagtaca 600
 caagcagaca ctttactcc aatcgtccct acagtcgatg tccccaacgg ccgagggtgat 660
 agcttggcct atggactgag gtcaaagtct aggagtctcc aggtttctga tgaacagtat 720
 cctgatgcca cagatgagga cctcacctct cacatgaaga gcggtgagtc taaggagtcc 780
 ctcatgttca tccctgtttg ccagcttctg agcatgccct ctgatcagga caacaacgga 840
 aagggcagcc atgagtcaag tcagctggat gaaccaagtc tggaaacaca cagacttgag 900
 cattccaaag agagccagga gagtgccgat cagtcggatg tgatcgatag tcaagcaagt 960
 tccaaagcca gcctggaaca tcagagccac aagtctcaca gccacaagga caagctagtc 1020
 ctagacccta agagtaagga agatgatagg tatctgaaat tccgaatttc tcatgaatta 1080

gagagttcat cttctgaggt caactaaaga agaggcaaaa acacagttcc ttactttgca 1140
 tttagtaaaa acaagaaaaa gtgtagtga gggtaagca ggaatactaa ctgctcattt 1200
 ctgagttcag tggatataatg tatgtagaga aagagaggta atattttggg ctcttagctt 1260
 agtctgttgt ttcattgcaa caccgttgta accaaaagct tctgaccttt gcttctgttg 1320
 ttctgtaca agaaatgcaa cggccactgc attttaatga ttgttattct ttcattgaata 1380
 aaatgtatgt agaaataagt aaatttactg aaacaagcaa gaattaaaag agaaactgta 1440
 acagtctata tcactatacc cttttagttt tataattagc atatattttg ttgtgattta 1500
 ttttttttg ttggtgtgaa taaatcttgt taacg 1535

<210> 12
 <211> 1250
 <212> DNA
 <213> mouse IL-15

<400> 12
 cttctgtcca gccactcttc cccagagttc tcttcttcat cctccccctt gcagagtagg 60
 gcagcttgca ggtcctcctg caagtctctc ccaattctct gcgccccaaa gacttgcaat 120
 gcatctcctt acgcgctgca gggaccttgc cagggcagga ctgcccccg cagttgcag 180
 agttggacga agacgggatc ctgctgtgtt tgggaaggctg agttccacat ctaacagctc 240
 agagaggica ggaagaatc caccttgaca catggccctc tggctcttca aagcactgcc 300
 tcttcattgt ccttgctggt gaggtcctta agaacacaga aacctatgtc agcagataac 360
 cagcctacag gaggccaaga agagtcttgg atggatggca gctggaagcc catcgccata 420
 gccagctcat cttcaacatt gaagctctta cctgggcatt aagtaatgaa aattttgaaa 480
 ccatatatga ggaatacatc catctcgtgc tacttgtgtt tccttctaaa cagtcacttt 540
 ttaactgagg ctggcattca tgtcttcatt ttgggctgtg tcagtgtagg tctccctaaa 600
 acagaggcca actggataga tgtaagatat gacctggaga aaattgaaag ccttattcaa 660

tctattcata ttgacaccac tttatacact gacagtgact ttcattcccag ttgcaaagtt 720
 actgcaatga actgctttct cctggaattg caggttattt tacatgagta cagtaacatg 780
 actcttaatg aaacagtaag aaacgtgctc taccttgcaa acagcactct gtccttctaac 840
 aagaatgtag cagaatctgg ctgcaaggaa tgtgaggagc tggaggagaa aaccttcaca 900
 gagtttttgc aaagctttat acgcattgtc caaatgttca tcaacacgtc ctgactgcat 960
 gcgagcctct tccgtgtttc tgttattaag gtacctccac ctgctgctca gaggcagcac 1020
 agctccatgc atttgaaatc tgctgggcaa actaagcttc ctaacaagga gataatgagc 1080
 cacttggaic acatgaaatc ttggaaatga agagaggaaa agagctcgtc tcagacttat 1140
 ttttgcttgc ttatttttaa tttattgctt catttgtaca tatttghtaat ataacagaag 1200
 atgtggaata aagttgtatg gatattttat caattgaaat ttaaaaaaaaa 1250

<210> 13
 <211> 699
 <212> DNA
 <213> mouse Flt3L gene

<400> 13
 atgacagtgc tggcgccagc ctggagccca aattcctccc tgttgctgct gttgctgctg 60
 ctgagtcctt gcctgcgggg gacacctgac tgttacttca gccacagtcc catctcctcc 120
 aacttcaaag tgaagtttag agagttgact gaccacctgc ttaaagatta ccagtcact 180
 gtggccgtca atcttcagga cgagaagcac tgcaaggcct tgtggagcct cticctagcc 240
 cagcgctgga tagagcaact gaagactgtg gcagggtcta agatgcaaac gcttctggag 300
 gacgtcaaca ccgagataca ttttgcacc tcatgtacct tccagcccct accagaatgt 360
 ctgcgattcg tccagaccaa catctcccac ctctgaagg acacctgcac acagctgctt 420
 gctctgaagc cctgtatcgg gaaggcctgc cagaatttct ctgggtgcct ggagggtcag 480
 tgccagccgg actcctccac cctgctgccc ccaaggagtc ccatagccct agaagccacg 540
 gagctcccag agcctcggcc caggcagctg ttgctcctgc tgcctgctgct gctgcctctc 600

acactggtgc tgctggcagc cgcctggggc cttcgtggc aaagggcaag aaggaggggg 660

gagctccacc ctgggggtgcc cctcccctcc catccctag 699

<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> EF1 primer

<400> 14
ctggtacat gagattggca g 21

<210> 15
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> ER1 primer

<400> 15
cctctagatt agttgacctc ag 22

<210> 16
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> 18F1 primer

<400> 16
tgaattcatg gctgcatgt cagaa 25

<210> 17

<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> 18R1 primer

<400> 17
ttctagacta actttgatgt aag 23

<210> 18
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> 15F1 primer

<400> 18
tgaattcatg aaaattttga aaccatat 28

<210> 19
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> 15R1 primer

<400> 19
ttctagacta aaagctttgc aaaaactctg tgaag 35

<210> 20
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> FF1 primer

<400> 20
tgaattcatg acagtgcctgg cgcc 24

<210> 21
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> FR1 primer

<400> 21
ttctagacta ctgcctgggc cgag 24

<210> 22
<211> 600
<212> DNA
<213> IRES sequence from pCK-mIL12

<400> 22
ggatccgata agcttgatat cgaattccgc .ccccccccc cctaacgtta ctggccgaag 60
ccgcttgaa taaggccggt gtgcgtttgt ctatatgtta tttccacca tattgccgtc 120
ttttggcaat gtgagggccc ggaacctgg ccctgtcttc ttgacgagca ttcctagggg 180
tctttccct ctgcctaaag gaatgcaagg tctgttgaat gtcgtgaagg aagcagttcc 240
tctggaagct tcttgaagac aaacaacgtc tgtagcgacc ctttgcaggc agcggaaccc 300
cccacctggc gacaggtgcc tctgcggcca aaagccacgt gtataagata cacctgcaaa 360
ggcggcacia cccagtgcc acgttgtag ttggatagtt gtggaaagag tcaaatggct 420
ctcctcaagc gtattcaaca aggggctgaa ggatgcccc aaggtacccc attgtatggg 480
atctgatctg gggcctcggg gcacatgctt tacatgtgtt tagtccaggt taaaaaacg 540
tctaggcccc ccgaaccacg gggacgtggt tttcctttga aaaacacgat aataccatgg 600

<210> 23

<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> IRES-F1 primer

<400> 23
gcggccgcga taagcttgat atcgaattcc g

31

<210> 24
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> IRES-R1 primer

<400> 24
ctcgagtatt atcgtgtttt tcaaagg

27